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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,839	12/06/2003	Kurt Hoffmann	ZIMR/0006	8307

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EXAMINER

LEE, WILSON

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,839

Applicant(s)

HOFFMANN, KURT

Examiner

Wilson Lee

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 17, 19-21 and 44 is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8, 10-15, 18 and 22-43 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/17/2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Objections

Claims 16, 31, 32, 33 are objected because of the following informalities.

In claim 16, line 12, should "a first voltage source" be changed to --the first voltage source--?

In claim 31, line 3, should "a current source" be changed to --the current source--?

In claim 32, line 2, should "a first voltage source" be changed to --the first voltage source--?

In claim 33, line 2, should "the second voltage" be changed to --a second voltage--?

Claim Rejections – 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 7, 8, 10-15, 18, 22-25, 27-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 4, line 2, "fourth switch" is vague because second switch and third switch are missing in any intervening claim.

Regarding Claim 7, line 3, "third switch" is vague because second switch is missing in any intervening claim.

Regarding Claim 8, line 4, "or" renders uncertainty whether the claimed limitation is required or not.

Regarding Claim 10, line 3, "and/or" renders indefinite to the claimed invention because this term conveys two different structures whether the limitation is required or not. Line 2, "a fourth switch" is vague because second switch and third switch are missing in any intervening claim.

Claim 11 is vague by virtue of its dependency on claim 10.

Regarding Claim 12, lines 2-3, "the field emitter beam source is an array of field emitter beam sources" is vague because a single field emitter beam source cannot be equivalent to a plurality of field emitter beam sources.

Claim 13 is vague by virtue of its dependency on claim 12.

Regarding Claim 14, lines 3, 4, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 15, line 2, "the array" lacks antecedent basis.

Regarding Claims 18, 22, "fourth switch" is vague because third switch is missing in any intervening claim.

Regarding Claim 23, line 5, "and/or" renders indefinite to the claimed invention because this term conveys two different structures whether the limitation is required or not.

Regarding Claim 24, line 3, "all" does not match with "field emitter beam source" because the source is singular.

Regarding Claim 25, line 3, "preferably" and "even more preferred larger" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 27, line 12, "a first voltage" is vague whether it refers to the first voltage as disclosed on line 6 of claim 27 or another voltage.

Claims 28-43 are vague by virtue of their dependency on claim 27.

Regarding Claim 35, lines 3, 4, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 36, line 3, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 37, lines 3, 4, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 41, lines 3, 4, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 42, line 3, "preferably" and "even more preferred" render indefinite to the claimed invention whether the claimed invention is required or not.

Regarding Claim 43, lines 2-4, "or" renders uncertainty whether the claimed limitation is required or not. On line 5, "and/or" renders indefinite to the claimed invention because this term conveys two different structures whether the limitation is required or not. On line 7, "fourth switch" is vague because second switch and third switch are missing in any intervening claim.

Claim Rejections – 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

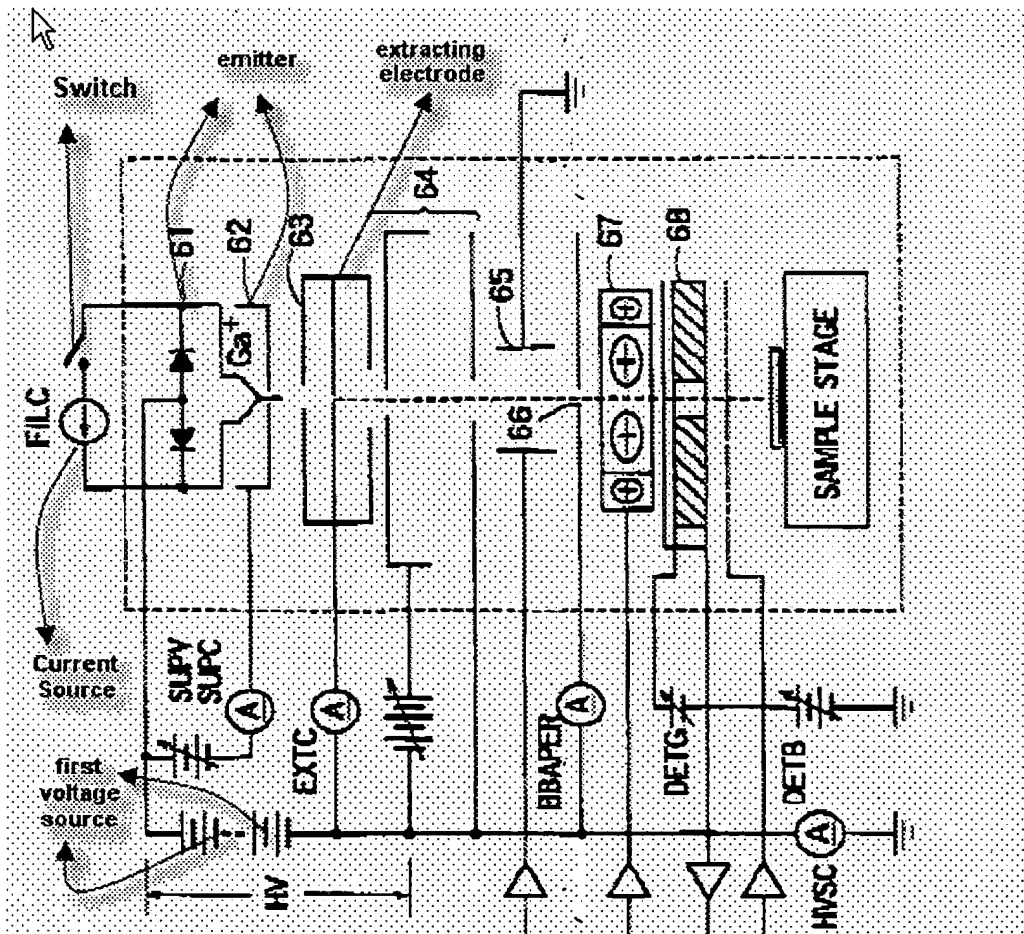
A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 26, 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al. (6,372,612).



Regarding Claim 1, Ito discloses a field emitter beam source (See above or figure 7) comprising:

- an emitter (61, 62);

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- an extracting electrode (63) to extract a beam current from the emitter (61, 62);
- a first voltage source (batteries connected between 61 and 63) for providing a first voltage between the emitter (61, 62) and the extracting electrode (63) to switch on the beam current;
- a current source (FILC) for providing a predetermined beam current;
- the current source being coupled to the first voltage source; and
- a first switch (switch which is connected on the right side of the current source) for disconnecting the first voltage source from the current source.

Regarding Claim 26, Ito discloses an electron beam device (laser beam irradiation unit) (See Col. 6, lines 30-33).

Regarding Claim 27, Ito discloses a method for generating beam current pulses comprising the steps of providing a field emitter beam source comprising one emitter (61, 62), one extracting electrode (63), a first voltage source (batteries connected between 61 and 63) for providing a first voltage between the emitter (61, 62) and the extracting electrode (63) to switch on the beam current, a current source (FILC) coupled to the first voltage source, and a first switch (switch) from disconnecting the first voltage source from the current source; the steps of providing a predetermined beam current (from FILC), and switching on the beam current by applying a voltage (a variable voltage at the variable voltage supply) between the emitter and the extracting electrode.

Claims 1-4, 26, 27, 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwai et al. (6,320,319).

Regarding Claim 1, Iwai discloses a field emitter beam source comprising:

- an emitter (12);
- an extracting electrode (14) to extract a beam current from the emitter (12);
- a first voltage source (18) for providing a first voltage between the emitter (12) and the extracting electrode (14) to switch on the beam current;
- a current source (16) for providing a predetermined beam current;
- the current source being coupled to the first voltage source (18); and
- a first switch (60) for disconnecting (shut-down) the first voltage source from the current source.

Regarding Claim 2, Iwai discloses a second voltage source (64) for providing a second voltage between the emitter (12) and the extracting electrode (30) to switch off the beam current (controller 64 sends a signal to control shut-down circuit 60 for switch off the current source 16).

Regarding Claim 3, Iwai discloses a second switch (64) to switch off the beam current by sending control signal (See Figure 6).

Regarding Claim 4, Iwai discloses a switch (64) for disconnecting the current source (16) from the emitter (12) and the extracting electrode (14) (See Figure 6).

Regarding Claim 26, Iwai discloses an electron beam device (See Col. 9, lines 20-34).

Regarding Claim 27, Iwai discloses a method for generating beam current pulses comprising the steps of providing a field emitter beam source comprising one emitter (12), one extracting electrode (14), a first voltage source (18) for providing a first voltage

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between the emitter (12) and the extracting electrode (14) to switch on the beam current, a current source (16) coupled to the first voltage source, and a first switch (60) from disconnecting the first voltage source from the current source; the steps of providing a predetermined beam current (from source 16), and switching on the beam current by applying a voltage (Col. 10, lines 9-45) between the emitter (16) and the extracting electrode (14).

Regarding Claim 30, Iwai discloses that the beam current (at the current source 16) is switched off by applying a second voltage (from controller 64) between the emitter (12) and the extracting electrode (14).

Regarding Claim 31, Iwai discloses that the predetermined beam current is provided by means of a current source (16).

Regarding Claim 32, Iwai discloses that the first voltage is provided by the first voltage source (18).

Regarding Claim 33, Iwai discloses that a second voltage is provided by a second voltage source (64).

Allowable subject matter

Claims 5, 6, 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 16, 17, 19, 20, 21, 44 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art neither discloses nor suggests an array of field emitter beam sources integrated onto a semiconductor substrate such as required by claim 16.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

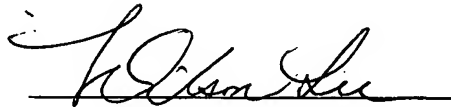
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chadha (6,639,353) discloses a cathode device comprising a voltage source connected to the gate and emitter tip. Ito et al. (6,596,612) discloses a semiconductor circuit. Xia (6,476,548) discloses a focusing electrode for field emission displays. Marsh (6,429,439) discloses an organic field ionization device.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Wilson Lee whose telephone number is (571) 272-1824.

Papers related to Technology Center 2800 applications may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The official fax number is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Wilson Lee', is written over a horizontal line.

Wilson Lee
Primary Examiner
U.S. Patent & Trademark Office

10-27-05